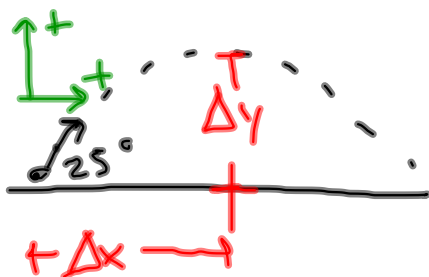


HW: P. 99: 3, 4

P. 101: 1, 3

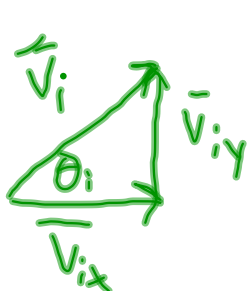
Projectile Motion Practice Problem and HW 4th Block 9.8.11

A golfer hits a golf ball at an angle of 25.0 degrees to the ground with an initial velocity of 62.1 m/s. If the golf ball covers a horizontal distance of 301.5 m, what is the ball's maximum height?



$$V_i = 62.1 \text{ m/s} \quad t = ?$$
$$\theta_i = 25^\circ \quad \Delta y = ?$$

$$\Delta x = 150.75 \text{ m}$$



$$V_{f1} = 0 \text{ m/s}$$

$$V_{ix} = V_i \cos(25^\circ) = 56.3 \text{ m/s}$$

$$V_{iy} = V_i \sin(25^\circ) = 26.2 \text{ m/s}$$

$$\Delta x = V_{ix} t$$

$$t = \frac{\Delta x}{V_{ix}} = \frac{150.75 \text{ m}}{56.3 \text{ m/s}} = 2.68 \text{ s}$$

$$\Delta y = V_{iy} t + \frac{1}{2} a_y t^2$$

$$= (26.2 \text{ m/s})(2.68 \text{ s}) + \frac{1}{2} (-9.8 \text{ m/s}^2)(2.68 \text{ s})^2$$

$$= 35.0 \text{ m}$$